

rotating the drum for transporting the particulate material to a position above the first conveyor upon which the particulate material falls by gravity characterised in that the amount of particulate material falling from the first belt and deposited onto the portion of the second belt of the second conveyor which lies below the first belt of the second conveyor is controlled by an adjustable plate positioned beneath the upper run of the first belt of the second conveyor.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be further illustrated by way of example with reference to the following drawings.

FIG. 1 is a sectional side view of the apparatus.

FIG. 2 is a transverse section through the drum along the line A—A in FIG. 1.

FIG. 3 is a top plan view of the upper end of a stationary plate positioned adjacent the inside wall of the drum.

FIG. 4 is a sectional side view of part of the apparatus where the first belt of the second conveyor is a single perforated belt.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to the drawings, the apparatus generally designated 10 comprises a horizontal conveyor for transporting a foodstuff, consisting of a solid belt 11, wire mesh belts 12 and 13 and solid belts 14 and 15. Beneath the upper runs of wire belts 12 and 13 are stationary solid plates 16,17. Beneath the gap between wire belts 12 and 13 is a pivoted adjustable plate 18 and beneath belt 14 is a further solid belt 19. The upper run of solid belt 14 has an inclined portion 20 and a horizontal portion 21. Positioned above the horizontal portion 21 of the upper run of solid belt 14 is a pressure roller 22 turning on an axle 23.

Situated above the vibrator and pressure roller is a horizontal solid endless conveyor belt 24 provided with side walls 25 trained around rollers 26 and 27 and having a triangular roller 28 underneath the upper run positioned so that the angles contact the upper run as it rotates.

A rotating drum 29 driven by drive rollers 30, 31 is positioned so that the horizontal portion 20 of the upper run of belt 14 as well as part of belts 15 and 25 travel through it. Positioned adjacent the inside wall of the drum 29 is a stationary baffle plate 32, the upper end of which 33 is designed to allow particulate material to be discharged evenly over the width of the belt 24. Other suitable designs of the upper end of the baffle plate will be readily apparent to a person skilled in the art.

Also illustrated in the drawings are battered frozen fish portions 34, potato cubes 35, battered frozen fish portions coated on top with potato cubes 36, battered frozen fish portions coated completely with potato cubes 37, means 38 whereby potato cubes are continuously added to the upper run of the belt 24, and arrows indicating the fall of potato cubes inside the drum 39 and 40.

The inside wall of the drum is partitioned by means of radially disposed plates 41 and parallel sides 42 defining peripherally adjacent and inwardly opening pockets which carry the potato cubes 35.

FIG. 4 illustrates a perforated belt 43, the perforations being large enough to allow the potato cubes to pass through, beneath the upper run of which is a pivotable plate 44 positioned above the upstream extremity of the second belt 45 of the second conveyor with an inclined upper run 46 and a horizontal upper run 47, a solid belt 48, and a solid belt 49, the potato cubes being generally designated 50.

In operation, the upper runs of wire mesh belts 11, 12 and 13, solid belts 14 and 15, the belt 24, and the rotating drum 29 travel in the direction indicated by the arrows.

Battered frozen fish portions 34, each weighing 50 g are fed from a battering machine (not shown) on belt 11. Fresh potato cubes 35 having dimensions of 3 mm×3 mm×7 mm are fed continuously from a means 38 on to the conveyor belt 24 which vibrates by means of the rotation of the triangular roller 28. The potato cubes are transported to the end of the belt which is trained around roller 26 where they fall off and fall onto the fish portions which are lying on belt 12, to give frozen fish portions coated on top 36. Excess potato cubes fall between belts 12 and 13 where a certain proportion is guided and being deposited onto the inclined portion 20 by the appropriate adjustment of the pivoted plate 18, the remainder falling onto the upper run of belt 19. The thickness of the layer of potato cubes on the inclined portion 20 is monitored by a sensor (not shown) and the pivoted plate is adjusted by the sensor automatically to the appropriate angle in order to provide the desired thickness of potato cubes on the inclined portion 20. The excess potato cubes which fall on the inclined portion 20 are transported on the inclined portion 20 of the upper run of solid belt 14 in the direction of the arrow to the horizontal portion 21 where the frozen fish portions coated on top travel from belt 13 to lie on the excess potato cubes so that they become completely coated fish portions 37, and pass under the pressure roller 22.

The excess potato cubes which have fallen onto the belt 19 and the completely coated fish portions 37 on the horizontal portion 21 of belt 14 then pass through the rotating drum 29. Inside the drum excess potato cubes 35 on the horizontal portion 21 of belt 14 fall through the gap between belts 14 and 15 and the excess potato cubes on the belt 19 fall off the downstream end of the belt 19 and are guided by a device such as described in application Ser. No. 07/556,651 in a path indicated by the arrows 39 to cover the axial width of the lower part of the inside wall of the drum and travel upwards on the inside wall within the pockets defined by the plates 41 and the parallel sides 42 and supported by the stationary plate 32, until they reach a position above the belt 24 where, indicated by the arrows 40, they fall onto the belt 24 and spread in an even manner owing to the design of the upper end 33 of the plate 32. There, they are transported, along with potato cubes fed by means 38, to be recirculated by falling off the end of the belt trained around roller 26 and onto the battered fish portions 34.

After emerging from the inside of the rotating drum 29 on the wire belt 15, the completely coated fish portions are transported to a fryer (not shown) and then deep-frozen.

In the embodiment shown in FIG. 4, instead of belts 12 and 13 with solid plates 16,17 where excess potato cubes fall through the gap between belts 12 and 13, the excess potato cubes 50 fall through the perforations of the single perforated belt 43 where a certain proportion is guided automatically onto the inclined upper run 46 of the second belt 45 by the appropriate adjustment of the pivoted plate 44, the remainder falling onto the upper run of belt 49. The excess potato cubes are then transported to the drum for recirculation in the same manner as described in relation to FIGS. 1 to 3 while the coated fish portions are transported to a fryer and deep-frozen.

I claim:

1. An apparatus for coating a foodstuff with particulate material comprising:
 - a drum capable of rotating about a substantially horizontal longitudinal axis;